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PLANT NEMATOLOGY IN VENEZUELA

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Red ring disease of coconut palms associated with the nematode *Aphelenchus* [*Aphelenchoides*] *cocophilus* is serious in Venezuela. Bain & Fedón review the published work on the disease, describe the symptoms and give an account of their inoculation experiments. Fruiting and non-fruited palms of different ages were inoculated by the placing of infested material either around the roots or in the axils of the crown leaves. Results showed that infestation is not by way of the roots but takes place in the leaf axils; symptoms became obvious after about 2 months. The nematodes do not pass from tree to tree by way of the soil but are carried by ants and by *Rhyncophorus palmarum*. The ants which are normally found on plants in flower are common in the leaf axils of palms at the most susceptible age and are said to travel from tree to tree in search of food. The problem of control of red ring disease is an entomological one, it being necessary to control the ants as well as to burn infested palms. One palm tree in the experiments showed a high degree of resistance to the disease.

M.T.F.

—Plant Disease Reporter. Supplement.

STANDEN, J. H., 1952.—“Host index of plant pathogens of Venezuela.” No. 212, pp. 59-106.

This host index of plant pathogens in Venezuela is stated in the introduction to be far from complete. The only plant parasitic nematode listed is *Meloidogyne* sp. in *Brassica oleracea* var. *capitata*, *Dahlia* spp., *Dianthus* spp., *Glycine max*, *Lycopersicum esculentum*, *Nicotiana tabacum* and *Solanum tuberosum*. [The sources quoted for these records are (i) “El reconocimiento de las enfermedades de las plantas cultivadas en Venezuela, 1937-1941” by A. S. Muller in *Bol. Soc. venezol. Cienc. nat.*, 48, May-July 1941, and (ii) Facultad de Ingeniería Agronómica de la Universidad Central, El Valle, Dto. Federal, Venezuela: “Mycological specimens collected by the Depto. de Fitopatología”.]

R.T.L.

—DAO D., F., 1961. “El nematodo del ajo *Ditylenchus dipsaci* (Kühn, 1858, Filipjev 1936) y medidas de control.” *Ingeniería Agronómica*. Caracas, No. 6, pp. 26-28.

In this well illustrated general article, Dao reports *Ditylenchus dipsaci* on onions in Venezuela. He explains that biological races of the nematode occur and that these races can only be distinguished from each other by differences in host ranges. He mentions that *D. myceliophagus* and *D. destructor* are recognized as separate species and that *D. dipsaci*, as at present constituted, contains only obligate parasites. The histological effects of *D. dipsaci* in plants are described, including the production of a pectinase which dissolves the middle lamellae of cells to produce cell rounding and separation. Control of onion bloat by drenching soil with formalin and the use of chloropicrin and D-D as pre-plant soil treatments are referred to. Phosdrin gave a 90% kill of *D. dipsaci* during *in vitro* tests.

C.D.B.

—LOOF, P. A. A., 1964. “Free-living and plant-parasitic nematodes from Venezuela.” *Nematologica*, 10 (2), 201-300. [German & Spanish summaries pp. 296-298.]

Loof describes a collection of nematodes made by Oostenbrink in Venezuela in 1962. The collecting localities and associated plants, where applicable, are indicated and altogether 219 species were found. Tropical and subtropical species were found at lower altitudes but species common to temperate climates occurred in the mountains. 95 species are described and of these 24 are new. *Mesorhabditis capitata* n.sp. has a shallower mouth cavity than that of *M. szunyoghii* and its vulval lips project; *Eucephalobus pulcher* n.sp. is smaller, its tail longer and the cuticle annulation is much coarser than in *E. longicaudatus*; *Acrobeles undulatus* n.sp. is smaller than *A. thornei* and has narrower annulation; *Tylenchorhynchus contractus* n.sp. is smaller than *T. striatus* and its head is more rounded; *Peltamigratus pachyurus* n.sp. has a differently shaped tail from *P. holdemani* and its cuticle is also different; *Criconemoides oostenbrinki* n.sp. is very like *C. antipolitanus* but the posterior margin of the female annules is smooth; *Bursaphelenchus digitulus* n.sp. is unique in that the vulva is at 85%; *B. gonzalezi* n.sp. differs from *B. fungivorus* in

having a subdorsal caudal papilla; *Chronogaster daoi* n.sp. differs from *C. alata* by having no longitudinal striae on the cuticle; *Mononchus venezolanus* n.sp. differs from *M. papillatus* by being larger and having no ventral ridge in the stoma; *Mesodorylaimus globiceps* n.sp. differs from *M. tenellus* by the more offset head and anterior position of the vulva; *Eudorylaimus morbidus* n.sp. is smaller and has a shorter tail than *E. hastatus*; *Drepanodorus orthodon* n.sp. is smaller than *D. leptcephalus* and has an almost straight spear; *Discolaimus affinis* n.sp. differs from *D. major* in the posterior vulva; *D. mucurubanus* n.sp. differs from *D. texanus* in shape of head, oesophagus and cardia; *Tylencholaimus leptonchoides* n.sp. has a much longer tail than *T. nikkoensis*; *Carcharolaimus drepanodon* n.sp. is unique in its curved spear; *Dorylaimellus longicollis* n.sp. has a very long oesophagus, an anterior oesophageal expansion and an anterior excretory pore; *D. spicatus* n.sp. differs in length and shape of tail from *D. virginianus*; *Dorylaimellus nygellurus* n.sp. has a unique tail shape; *Dorylaimoides porifer* n.sp. has a more offset head and a longer posterior part of the oesophagus than *D. paulbuchneri*; *Doryllium longicaudatum* n.sp. is unique in its elongate tail; *Tyleptus gymnochilus* n.sp. has no inner liplets and has a shorter oesophagus than *T. projectus*; *Alaimus striatus* n.sp. is unique in having a longitudinally striated cuticle. *Criconemoides citri* is made a synonym of *C. sphaerocephalus*; *Mesodorylaimus annulatus* has longitudinal striae and is replaced in *Dorylaimus*; *Eudorylaimus intrastratus* is transferred to *Discolaimoides*; *Thornenema limnophilum* is transferred to *Dorylaimoides*; *Tyleptus* is replaced in the Leptonchidae.

J.B.G.

-SHER, S. A., 1964. "Revision of the Hoplolaiminae (Nematoda) IV. *Peltamigratus* n.gen." *Nematologica*, Year 1963, 9 (3), 455-467. [French summary p. 467.]

Peltamigratus n.g. is proposed with *P. christiei* (Golden & Taylor, 1956) n.comb. for *Scutellonema christiei* as the type species; this genus differs from *Scutellonema* and *Aorolaimus* by the absence of lip striation, the large phasmids which are situated anteriorly to the anus and not opposite one another and the indented male caudal alae. A key to 5 species of *Peltamigratus* is given and *P. christiei* is redescribed. *P. luci* n.sp. from pineapple (*Ananas sativus*) soil in Martinique is distinguished from *P. christiei* by the shorter spear and in that the narrow distal annules of the female tail are not deeply constricted. *P. holdemani* n.sp., collected in jungle soil from the Coto Valley, Costa Rica, differs from *P. luci* by the small epiptygma in the female and the slight indentations of the male caudal alae. *P. macbethi* n.sp., from soil around potato (*Solanum* sp.) at Cagua, Argua, Venezuela, differs from *P. christiei* by the inconspicuous incisures of the lateral field, shorter spear, female tail without deeply indented constrictions of the annules, slightly indented caudal alae and the usually closer proximity of the phasmids. *P. nigeriensis* n.sp., distinguished from *P. luci* by the female tail which has wider distal annules and fewer total caudal annules, was collected from savannah grass soil at mile marker 13 on Olorunda-Meko Road, 26 miles from Abeokuta, Nigeria. Phylogenetically, *Peltamigratus* is thought to lie between *Scutellonema* and *Aorolaimus*. P.R.T.

-HEYNS, J., 1965. "On the morphology and taxonomy of the Aporcelaimidae, a new family of dorylaimoid nematodes." *Entomology Mem. Dep. agric. tech. Serv. Repub. S. Afr.*, 10, 51 pp. Aporcelaimidae n.fam. is erected to accommodate *Sectonema* Thorne, which is removed from the Nygolaimidae, *Aporcelaimus* Thorne, which is removed from the Dorylaimidae and 4 new genera, *Aporcelaimellus* n.g., *Makatinus* n.g., *Aporcelaimoides* n.g. and *Scapidens* n.g. The morphology of the family is discussed and a probable transition from the axial spear of *Aporcelaimus* to the mural tooth of *Sectonema* is illustrated. The distinguishing features of the Aporcelaimid genera are tabulated. *Sectonema* is revised. *S. macroscopiculum* (Alther) n.comb. is transferred from *Nygolaimus* and redescribed. The male of *S. ventrale* and 6 new species are described. *S. brevicauda* n.sp., one female from a bulb nursery at Little Falls (Transvaal), resembles *S. ventrale* but the tail is shorter, the basal extension of the tooth does not reach across the pharynx and the lips are rounded and narrower than the adjoining body. *S. barbatum* n.sp., one female collected in Florida, is easily recognized by the setae around the mouth and the anterior spindle-shaped bulb. *S. barbatoides* n.sp. from dahlia soil at Hillegom (the Netherlands),

resembles *S. barbatum* but has neither oral setae nor an anterior spindle-shaped bulb and the tail is longer and more pointed. Other specimens were collected from marshy dunes at Zouteland, the Netherlands. *S. basilgoodeyi* n.sp., one of each sex collected at Fareham (England), differs from *S. macroscopiculum* in having a relatively narrower lip region and a hemispherical tail and in lacking a series of ventromedian pores and mammiliform ventromedian supplements. *S. pseudoventrals* n.sp. from farmland at Graskop (Transvaal), resembles *S. ventrale* but is smaller, has a smaller tooth, fewer intestinal cells, fewer lateral pores, ventral pores only in the neck and a more pronounced oesophago-intestinal disc. Specimens were also collected from Hawaii and 3 sites in the Netherlands. *S. macbethi* n.sp., one of each sex and juveniles, collected from soil growing papaya in San Felipe (Venezuela), differs from *S. pseudoventrals* in the absence of an oesophago-intestinal disc, the relatively longer tooth and in the divergence of the basal extension of the tooth, being posteriorly directed in *S. macbethi* and dorsally directed in *S. pseudoventrals*. A key to the 10 known species of *Sectonema* is given. The genus *Aporcelaimus* is redefined. *A. vorax* and *A. declinat-oaculeatus* are considered valid species of this genus in opposition to their placement in *Drepanodorus* by Brzeski (1964). *A. mulveyi* Brzeski, 1962 is regarded as a species *incertae sedis*, probably belonging to Dorylaiminae. 8 species are transferred from *Aporcelaimus* to *Aporcelaimellus* n.g.: *A. obscurus* n.comb. (type), *A. gerlachi* n.comb., *A. krygeri* n.comb., *A. mamillatus* n.comb., *A. nivalis* n.comb., *A. paraconicaudatus* n.comb., *A. seinhorsti* n.comb., and *A. vanderlaani* n.comb. *A. amylovorus* n.comb., and *A. capitatus* n.comb., are transferred from *Eudorylaimus*. *A. williamsi* nom.nov., is proposed for *A. spiralis* (Cobb) of Williams, 1959. *Aporcelaimellus* differs from *Aporcelaimus* in being shorter but relatively more robust, in having a cuticle with transverse striae, not with criss-cross lines as *Aporcelaimus* has, in having a small hexagonal oral aperture, a hexagonal pharynx in cross-section, a pore-like vulva, undivided amphidial chambers with indistinct median supports, and in lacking an oesophago-intestinal disc. *Makatinus punctatus* n.g., n.sp. from virgin veld in Northern Natal, type species, resembles *Aporcelaimus* but has moderately amalgamated lips, a longitudinal vulva with cuticularized lips, punctations on the cuticle and lacks an oesophago-intestinal disc. *M. capensis* n.sp. from soil in a pinery at Bathurst (Cape Province), is distinguished from *M. punctatus* by its bluntly rounded tail and the absence of radial lines in the cuticle. Males of this species are unknown. *Aporcelaimoides probulbum* n.g., n.sp. from soil around the roots of *Pinus patula* in Transvaal is the type species and differs from all other genera of the Aporcelaimidae in having a dorylaimoid spear which is set ventrally in the pharynx similar in position to the mural tooth of *Sectonema*. *A. probulbum* was also collected from virgin veld, plantations of pine, black wattle and gum trees and orchards of citrus, peach and walnut in widely separated areas of South Africa. *A. californicum*

n.sp., one female, from Pine Crest (California, U.S.A.), has a spear which is broad and flared anteriorly with a wide aperture, contrasting with the spear of *A. probulbum* which is relatively slender with an obscure aperture. *Scapidens perplexus* n.g., n.sp. from Spanish Town (Jamaica), is the type species and is distinguished by its mural tooth set on the elevation of the ventral wall of the pharynx. This species was collected also in Turmero and Santa Cruz, Venezuela, but the male is unknown.

D.W.L.



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-GRISSE, A. DE, 1967. "Description of fourteen new species of Criconematidae with remarks on different species of this family." *Biol. Jaarb.*, 35, 66-125. [French summary pp. 87-88.]

14 new species of Criconematidae are described and figured: one *Criconemoides* sp., 4 *Macroposthonia* spp., 4 *Nothocriconema* spp., 4 *Discocriconemella* spp. and one *Lobocriconema* sp. *C. amorphus* n.sp. was collected from a dune at Middelkerke, Belgium; *M. coomansi* n.sp. from around the roots of *Chloris gayana* from Salines, Congo Republic [=Congo Kinshasa]; *M. denoudeni* n.sp. from sandy soil around the roots of citrus and from clay soil around the roots of coffee from Paramaribo, Surinam; *M. dherdei* n.sp. from around the roots of old peach-trees and grass from Rijkstuinbouwschool, Melle, Belgium; *M. peruensisformis* n.sp. from around the roots of potato from Santo Domingo, Venezuela; *N. corbetti* n.sp. from around the roots of *Fimbristylis* sp. from Zomba, Malawi; *N. dubium* n.sp. from around the roots of tea plants in Musasa and banana in Mwindozi, Burundi; *N. loofi* n.sp. from sandy dune soil around the roots of grass plants from Middelkerke, Belgium; *N. solitarium* n.sp. from a bamboo forest near Pweto, Congo Republic; *D. baforti* n.sp. and *D. macramphidia* n.sp. from a forest along the Kinga river, Kamena, Congo Republic; *D. glabranulata* n.sp. from savanna at Kamena, Congo Republic; *D. sphaerocephaloides* n.sp. from around the roots of sugar-cane from central Nyanza, Kenya; *L. pauperum* n.sp. from grass roots from Kansimba, Congo Republic. 34 formerly described *Criconemoides* species are synonyms and 20 are *species inquirendae*. A key is given for the 10 genera of Criconematidae and the species are described and illustrated. S.W.A.

-LOOF, P. A. A. & JAIRAJPURI, M. S., 1968. "Taxonomic studies on the genus *Tylencholaimus* de Man, 1876 (Dorylaimoidea) with a key to the species." *Nematologica*, 14 (3), 317-350. [German summary p. 349.]

The genus *Tylencholaimus* is removed from the Dorylaimidae and placed in the Leptonchidae. Consequently the subfamily Tylencholaiminae is also transferred to Leptonchidae; it is considered synonymous with Xiphinemellinae and contains the genera *Tylencholaimus*, *Botalium*, *Discomyctus*, *Xenonchium* and *Xiphinemella*. The genus *Enchodelus* remains in the Dorylaimidae. *T. mirabilis*, the type species of *Tylencholaimus*, is redescribed from topotypes; *T. brevicaudatus* is considered identical with it. A neotype is designated and the male, unknown so far, is described. 8 new species are described and figured. *T. pusillus* n.sp. associated with *Anacardium occidentale* at Waltair, Visakhapatnam, India, has the same lip-shape as *T. minimus* but is much smaller and there are no radial striae in the cuticle. *T. congestus* n.sp. from vineyard soil at Ischia, Italy, and *T. savaryi* n.sp. from soil at Vaux-sur-Morges, Switzerland, are characterized by didelphic gonads and by a number of large cells surrounding the vagina; in *T. congestus*

the lip region is offset by a shallow constriction, the inner papillae do not project and the tail is hemispheroid; in *T. savaryi* the lips are offset by a deep constriction, the inner papillae project markedly and the tail is convex-conoid. *T. crassus* n.sp. from soil from a beet field at Middenmeer, The Netherlands, is also didelphic, but much stouter than *T. congestus* and *T. savaryi*, and there are no large cells around the vagina. *T. formosus* n.sp. associated with *Erodium cicutarium* at Terschelling, The Netherlands, and *T. airolensis* n.sp. from soil at Airola, St. Gotthard, Switzerland, are didelphic, the rudiment of the posterior gonad is large and serves as receptaculum seminis; in *T. formosus* the oesophagus is expanded behind the middle, the 2 parts being separated by a marked constriction; in *T. airolensis* the 2 parts of the oesophagus are equal in length and not separated by a constriction. In *T. maritus* n.sp. associated with *Espeletia* sp. at Mucabaji, Venezuela, the rudiment of the posterior female gonad is very small, the tail is hemispheroid and males are numerous. *T. paradoxus* n.sp. from the same source as *T. savaryi* has a very fine spear and minute sclerotized pieces near the oral opening. In addition, a redescription is given of *T. stecki*. *T. similis* is synonymized with *T. leptonchoides*; *T. macrurus* may also be identical with this species. A few additional details of *T. viduus* are given: A key to the species is presented. [A.S.] P.S.G.

-TORREALBA, P. A., 1968. "Taxonomic and biological observations on some nematode genera." *Diss. Abstr.*, 28 (8), 3132.

-FLORES, J. M. & YÉPEZ T., G., 1969. "*Meloidogyne* in coffee in Venezuela." In: Peachey, J. E. [Editor], "Nematodes of tropical crops." *Tech. Commun. Commonw. Bur. Helminth.*, No. 40, pp. 251-256.

Plant nematodes, especially *Meloidogyne exigua* are widely distributed in all the coffee-producing zones of Venezuela. *Pratylenchus coffeae* was found only in the Andean and Central Region. Other nematodes found included *Helicotylenchus erythrinae*, *Helicotylenchus* sp., *Criconemoides* sp., *Aphelenchus avenae* and *Aphelenchoides* sp. The nematodes are less numerous from January to March, probably because of the dry conditions, and reach high levels from May to October. J.E.P.

-TORREALBA, P. A., 1969. "Survey of plant-parasitic and free-living nematode genera from Venezuela." In: Peachey, J. E. [Editor], "Nematodes of tropical crops." *Tech. Commun. Commonw. Bur. Helminth.*, No. 40, pp. 257-263.

A total of 76 genera, including plant parasitic and free living forms, were identified in a survey of nematodes from Venezuela. *Helicotylenchus* was the most common nematode and was associated with the largest number of plant species. *Rhadinaphelenchus*, *Meloidogyne*, *Tylenchulus* and *Ditylenchus* were found to cause the most damage to crops. Cysts of *Heterodera* were found in only 2% of the samples. *Pseudhalenchus*, *Neotylenchus*, *Bastiania*, *Cryptonchus*, *Meylonema*, *Trachypleurosium*, *Nygelus*, *Roqueus*, *Sporonchulus* and *Cobbonchus* are reported for the first time from this country.

[A.S.] J.E.P.

DAO D., F., 1970. "Climatic influence on the distribution pattern of plant parasitic and soil inhabiting nematodes." *Meded. LandbHoo-gesch. Wageningen*, 70 (2), 1-181. [Spanish & Dutch summaries pp. 145-162.]

This treatise includes a comprehensive bibliography of soil, plant, freshwater and marine nematodes. A section is devoted to techniques and apparatus for sampling and culturing nematodes, and to equipment and methods for estimating densities and infestation levels of nematodes in soils, plant tissues and in culture. Environmental influences on soil nematodes and the effect of climate, particularly temperature, soil and plant factors on the development of populations are discussed. The nematofaunas of different climatic zones in Venezuela and the Netherlands are compared. Climatic effects on differences in composition of the nematofauna were studied by means of transmission and inoculation experiments in which the influences of soil, host and other organisms were excluded. Species studied were *Meloidogyne* spp., *Aphelenchus avenae*, *Ditylenchus* spp., *Helicotylenchus dihystra* and *Pratylenchus crenatus*. Air pressure did not affect reproduction and therefore does not limit the geographical range of a species. The effect of temperature on the survival and biology differs between species and between populations of a species. The climatic or geographical range of a nematode is closely related to lethal temperatures or to the optimum for activity or to various combinations of these. Temperatures of 25°C. and above were lethal to plant nematodes from the temperate zone in unplanted soil, and temperatures of 5°C. or below were lethal to nematodes from the tropical zone in 0.5 to 3.5 months. Tropical populations became active at 15°C. and thrived at 25 to 35°C. Temperate populations, i.e. those from the Netherlands and from Venezuelan mountains, survived very low temperatures and became active at 10°C. The optimum range was different for each species. The temperature requirements of different populations of the same species showed stable differences which are probably genetically controlled. The influence of temperature on the morphology and the marked physiological specialization within the species illustrates the value of the species concept in work with nematodes. A.J.

-MARTÍNEZ R., G. J., 1970. [*Rhynchophorus palmarum* L. (Coleoptera, Curculionidae) carrier of the nematode of "red ring" in Venezuela.] "*Rhynchophorus palmarum* L. (Coleoptera, Curculionidae) portador del nemátodo del 'anillo rojo' en Venezuela." *Revista de la Facultad de Agronomía*, 5 (4), 81-85. [Es, en] Facultad de Agronomía, Univ. Central de Venezuela, Maracay, Venezuela.

Rhynchophorus palmarum collected on a coconut plantation in Venezuela were examined for *Rhadinophelenchus cocophilus*. Nematodes were found in or on 47 of the 104 beetles examined. M.T.F.

-YEPEZ T., G.; MEREDITH, J. A., 1970. [Plant parasitic nematodes in Venezuela.] "Nemátodos fitoparásitos en cultivos de Venezuela." *Revista de la Facultad de Agronomía*, 5 (4), 33-80. [Es, en] Facultad de Agronomía, Univ. Central de Venezuela, Maracay, Venezuela.

Plant-parasitic nematodes in Venezuela are listed under host plant and locality, the records being based on a study of 660 soil and root samples from the principal agricultural regions and on information from other workers and in publications. An analysis of the records indicates that the main problems, in order of importance, are: *Meloidogyne* spp. on vegetables, tomato, coffee and tobacco; *Rhadinophelenchus cocophilus* on coconut and oil palm; *Tylenchulus semipenetrans* on various forms of citrus; *Ditylenchus dipsaci* on garlic; and *Hirschmanniella oryzae* and *H. spinicaudata* on rice. The authors recommend increased study and training in nematology and the initiation of a national crop protection programme. There are 58 references. [From English summary.] M.T.F.

-DAO D., F.; GONZÁLEZ, J. A., 1971. [The golden nematode of potato, *Heterodera rostochiensis* Woll. and its presence in the Venezuelan Andes.] "El nemátodo dorado de la papa, *Heterodera rostochiensis* Woll. y su presencia en los Andes Venezolanos." *Agronomía trop.*, 21 (2), 105-110. [English summary p. 110.]

Heterodera rostochiensis is reported for the first time from Venezuela. Cysts were found in soil samples from potato fields in Merida and Tachira States, but not in the samples from Trujillo, Lara, Carabobo or Yaracuy States. All positive sites were more than 2,000 metres above sea level. Damage to potato plants was apparent in some areas. P.S.G.

-DAO, F. & GONZÁLEZ, J. A., 1971. "The golden nematode and its distribution in the Venezuelan Andes." [Abstract.] *Nematropica*, 1 (1), 12. [Also in Spanish p. 32.]

[New record of *Heterodera rostochiensis* for Venezuela.]

-OSORIS, J., 1971. "Outbreaks and new records. Venezuela. Golden potato cyst nematode." *Pl. Prot. Bull. F.A.O.*, 19 (2), 46.

Heterodera rostochiensis is recorded in Venezuela for the first time from a potato field in the Santo Domingo area in the Venezuelan Andes. M.T.F.

-DAO, F., 1972. "Influence of different crops on nematode populations." [Abstract.] *Nematropica*, 2 (1), 3, 17. [En, Es] Fundación Shell, Aragua, Venezuela.

-YEPEZ T., G.; MEREDITH, J. A.; PÉREZ, A., 1972. "Banana and plantain (*Musa* spp.) nematodes in Venezuela." [Abstract] *Nematropica*, 2 (1), 11, 24-25. [En, Es] Sección de Nematología, Inst. de Zoología Agrícola, Univ. Central de Venezuela, Maracay, Venezuela.

ANNOTATED BIBLIOGRAPHIES

	Period covered	Number of References	Price \$ £	
1. <u>Cysticercus ovis</u> and <u>Taenia ovis</u>	1932-69	59	1.30	0.50
2. <u>Taenia saginata</u> and <u>T. solium</u> in Lebanon, Turkey and Yugoslavia	1932-69	50	1.30	0.50
3. Helminthology in Iraq	1932-69	71	1.80	0.70
4. Humpsore (Stephanofilariasis) in domestic animals	1932-69	71	1.80	0.70
5. Skin lesions in domestic animals caused by <u>Elaeophora</u> , <u>Rhabditis</u> & <u>Parafilaria</u>	1932-69	55	1.30	0.50
6. Helminths and plant nematodes of Morocco	1932-70	111	2.60	1.00
7. <u>Angiostrongylus</u>	1932-71	210	7.00	2.70
8. Factors influencing the development of <u>Ascaris</u> eggs	1932-71	120	3.10	1.20
9. Helminths in archaeological and pre-historic deposits	1910-72	32	1.30	0.50
10. Neurological involvement in <u>Trichinella spiralis</u> infection in man	1932-70	51	1.60	0.60
11. White tip disease (<u>Aphelenchoides besseyi</u>) of rice in Africa and the tropics	1913-72	150	6.20	2.40
12. Helminths in dogs in Japan	1960-72	89	2.60	1.00
13. Nematodes on soybean (<u>Glycine max</u>)	1932-72	184	5.70	2.20
14. <u>Oswaldocruzia</u> (Nematoda)	1930-73	29	1.30	0.50
15. Transmission of plant viruses by nematodes	1930-73	120	3.10	1.20
16. Plant nematology in Venezuela	1932-72	21	1.30	0.50
17. <u>Diorchis</u>	1931-72	46	3.10	1.20

These can be obtained from the Commonwealth Institute of Helminthology, The White House, 103 St. Peter's Street, St. Albans, Herts, England.

